

**ABSTRACT OF THE DISCLOSURE**

Disclosed is an oscillator circuit (10) for use in a local oscillator of an RF communications device (100) that communicates over an RF channel. The oscillator circuit includes an oscillator transistor coupled to a power supply voltage ( $V_{cc}$ ) through a buffer transistor, and a biasing network having bias voltage outputs coupled to a control input of the oscillator transistor and to a control input of the buffer transistor. In one embodiment the bias voltage network is coupled to  $V_{cc}$ , while in another embodiment the bias voltage network is coupled to a separate voltage ( $V_{bias}$ ). Circuitry is provided for setting a magnitude of  $V_{cc}$  and/or  $V_{bias}$  as a function of at least one of RF channel conditions, such as channels conditions determined from a calculation of the (SNR), or an operational mode of the RF communications device. The magnitude of  $V_{cc}$  (and  $V_{bias}$ ) may be set between about zero volts (i.e., turned off) and some maximum value. The operational mode can be, for example, one of a TDMA, burst-type narrow bandwidth mode, or a CDMA, substantially continuous, wider bandwidth mode. The value of  $V_{cc}$  and/or  $V_{bias}$  may be set so as to minimize power consumption as a function of an amount of allowable local oscillator phase noise. A broad bandwidth/narrow bandwidth dual mode RF transceiver in accordance with these teachings includes at least one phase locked loop (PLL) that includes a voltage controlled oscillator (VCO) providing a local oscillator signal for at least one of an I/Q modulator or an I/Q demodulator; a processor responsive to an output of said I/Q demodulator for determining at least one aspect of RF channel quality; and circuitry coupled between the processor and the VCO for minimizing at least VCO power consumption as a function of an amount of allowable VCO phase noise for a current RF channel quality.

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